

REMARKS/ARGUMENTS

Claims 21-40 are pending in this Application.

Claims 21, 30, 32, 34, 37, 39, and 40 are currently amended. Applicant submits that support for the claim amendments can be found throughout the specification and the drawings.

Claims 21-40 remain pending in the Application after entry of this Amendment. No new matter has been entered.

In the Office Action, claims 21-31 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Claims 21-26 and 28-40 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,459,439 to Ahlquist et al. (hereinafter “Ahlquist”). Claim 27 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ahlquist.

Interview Summary

Applicant expresses gratitude to Examiner Chow and Examiner Brier for an interview between the Examiners and Applicant’s undersigned representative on May 31, 2007. No agreement was reached.

Applicant’s representative argued that none of the tools in Ahlquist, either individually or in combination, teach or suggest the features recited in claim 21 of receiving a set of feature specifications, each feature specification comprising a source feature and a target feature, and receiving, independent of the set of feature specifications, a set of transformations for mapping the source feature to the target feature in each feature specification in the set of feature specifications. The user’s movement of the tool in Ahlquist over the model from point A to point B does not teach or suggest receiving a source feature and a target feature, and a set of transformations for mapping the source feature to the target feature.

Applicant’s representative also argued that none of the tools in Ahlquist, either individually or in combination, teach or suggest the features recited in claim 21 of receiving a set of strength fields corresponding to the set of feature specifications, the set of strength fields

defined over the undeformed model for scaling the magnitude of transformations in the set of transformations to generate a set of scaled transformations, and receiving, independent of the set of strength fields, a set of weighting fields corresponding to the set of feature specifications, the set of weight fields defined over the undeformed model for determining the relative influence of the set of scaled transformations. The setting of variables of a function associated with the tool in Ahlquist does not teach or suggest the set of strength fields and the set of weighting fields that are defined over the undeformed model. Moreover, merely waving the tool in Ahlquist “over the model” does not teach or suggest that the variables of the function associated with the tool are defined over the model.

Claim Rejections Under 35 U.S. C. § 102(e)

Applicant respectfully traverses the rejections to claims 21-26 and 28-40 and requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 102(e) based on Ahlquist.

Applicant respectfully notes that to anticipate a pending claim, a prior art reference must provide, either expressly or inherently, each and every limitation of the pending claim. (M.P.E.P. § 2131).

The Office Action alleges that Ahlquist teaches or suggests all of the claim limitations of claims 21-26 and 28-40. However, based on the arguments presented below, Applicant respectfully submits that Ahlquist fails to teach or suggest at least one of the claim limitation recited in each of claims 21-26 and 28-40.

Claim 21

Applicant respectfully submits that the tools provided in Ahlquist, either individually or in combination, fail to teach or suggest all of the claim limitations of claim 21. For example, Applicant respectfully submits that the “pull tool,” the “push tool,” and the “area tool” of Ahlquist do not teach or suggest receiving a set of feature specifications where each feature specification includes both “a source feature and a target feature” and receiving a set of

transformations for “mapping the source feature to the target feature in each feature specification” as recited in claim 21.

One page 2 of the Final Office Action dated April 3, 2007, third paragraph, the Examiner argues that it is clear that a user in Ahlquist inputs at least a starting point and an end point to the program. However, the Examiner’s allegation that the user providing the starting point and ending point of each tool reads on the source feature and target feature recited in claim 21 does provide credible support to the Examiner’s allegation on page 2, fourth paragraph, that the formulas and functions that may be associated with each tool read on the set of transformations for “mapping the source feature to the target feature in each feature specification” as recited in claim 21.

The user influences the user’s motion of each tool in Ahlquist from a starting point to an ending point, rather than a set of transformation for “mapping the source feature to the target feature in each feature specification” as recited in claim 21. For example, in regard to the “pull tool,” the user in Ahlquist selects a starting point on a path and pulls the path to an end point. The function associated with the pull tool in Ahlquist does not map the start point to the end point provide by the user to teach or suggest the set of transformation functions recited in claim 21 for “mapping the source feature to the target feature in each feature specification.”

Thus, Applicant respectfully submits that the user waving the tool over the model to supply the motion of each tool from point A to point B is substantially different receiving a source feature and a target feature, and receiving a set of transformations for mapping the source feature to the target feature as recited in claim 21.

Applicant further respectfully submits that Ahlquist does not teach or suggest receiving a set of strength fields and receiving a set of weighting fields as recited in claim 21. For example, amended claim 21 recites receiving a set of strength fields “corresponding to the set of feature specifications” and receiving a set of weighting fields “corresponding to the set of feature specifications.” Again, the Examiner alleges that the start point and end point of each tool in Ahlquist reads on the source feature and target feature of a feature specification recited in claim 21. However, on page 3 of the Office Action, the Examiner points to the length parameter

that adjusts the endpoints 22a and 22b affected by the “pull tool” of Ahlquist as reading on the set of strength fields.

In Ahlquist, the length parameter corresponds to the function associated with the “pull tool,” and arguably, the length parameter corresponds to the computed endpoints 22a and 22b. The function associated with the tool and the location of the endpoints or outer limits affected by the tool 1) are different from the start point and end point provided by the user of the tool alleged by the Examiner, and 2) are even more substantially different from a set of strength fields corresponding to the set of feature specifications as recited in claim 21. Applicants also respectfully submit that the subject matter introduced by amendment in claim 21 was original presented in claim 32, therefore Applicant’s amendment, as proposed, fails to raise any issue of new matter or present new issues requiring further consideration and search.

Moreover, Applicants submit that the length parameter that adjusts the endpoints 22a and 22b affected by the “pull tool” of Ahlquist are not defined over the undeformed model as for scaling the magnitude of transformations in the set of transformations to generate a set of scaled transformations as recited in claim 21. Setting variables or parameters of a function associated with a tool, and then waving the tool over a model is substantially different from receiving a set of weighting fields “defined over the undeformed model” and a set of weighting fields “defined over the undeformed model” as recited in claim 21.

Finally, Ahlquist is directed to manipulating the paths on the model as influenced by the user provided the starting point and the ending point of each tool. Applicant respectfully submits that the user manipulations in Ahlquist do not teach or suggest generating the deformed model independent of receiving the set of feature specifications using a graphical warp through transformation of the undeformed model to the deformed model by applying the set of transformations, the set of strength fields, and the set of weighting fields to the undeformed model as recited in amended claim 21.

Accordingly, Applicants submit that claim 21 is patentable over the cited references.

Claim 30

Amended claim 30 recites a computer-implemented method of generating a graphical warp, the method comprising:

receiving information specifying an undeformed model;

receiving a parameter set specifying a warp;

determining, based upon the parameter set, a set of transformations, a set of strength fields, and a set of weighting fields; and

determining a deformation function based upon the set of transformations, the set of strength fields, and the set of weighting fields; and

applying the deformation function to the undeformed model independent of receiving the parameter set to generate a deformed model.

Applicants respectfully submit that Ahlquist fails to teach or suggest each and every claim limitation of claim 30. For example, claim 30 recites receiving a parameter set specifying a warp. Applicant submits that the set of “parameters” or variables of the functions in Ahlquist are substantially different to one ordinarily skilled in the art from the “parameter set specifying a warp” as recited in claim 30.

Additionally, on page 4 of the Office Action, the Examiner recognizes that the set of transformations, a set of strength fields, and a set of weighting fields are determined from the received parameter set as recited in claim 30. The Examiner then states that in Ahlquist the user defines the function for the tool, the length parameter, and the pressure parameter. However, the Examiner has not show or provided evidence where Ahlquist discloses that the set of transformations, a set of strength fields, and a set of weighting fields are determined from a parameter set. The Examiner clearly states that the user provides the function for the tool, the length parameter, and the pressure parameter.

The Examiner also makes the association that the function of the tool in Ahlquist provided by the user is the set of transformations. However, claim 30 also recites determining a deformation function based upon the set of transformations, the set of strength fields, and the set of weighting fields. Applicant submits that the providing or using the function associated with

the tool in Ahlquist does not teach or suggest the determining a deformation function based upon the set of transformations, the set of strength fields, and the set of weighting fields. Applicant submits that the user providing the single function associated with the tool in Ahlquist does not teach or suggest determining, based upon the parameter set, a set of transformations, a set of strength fields, and a set of weighting fields, nor does it teach or suggest determining a deformation function based upon the set of transformations, the set of strength fields, and the set of weighting fields.

Applicant further submits that Ahlquist does not teach or suggest applying the deformation function to the undeformed model independent of receiving the parameter set to generate a deformed model.

Claims 22-40

Applicant respectfully submits that independent claims 21, 30, 32, 34, 37, 39, and 40 are allowable for at least a similar rationale as discussed above for the allowability of claim 21, and others. Applicant respectfully submits that dependent claims 22-29, 31, 33, 35-36, and 38 that depend directly and/or indirectly from the independent claims 21, 30, 32, 34, 37, and 39 respectively, are also allowable for at least a similar rationale as discussed above for the allowability of the independent claims. Applicant further respectfully submits that the dependent claims recite additional features that make the dependent claims allowable for additional reasons.

Applicants respectfully traverses the rejections to claims 27 and requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) based on Ahlquist.

Claim Rejections Under 35 U.S.C. § 101

Applicant respectfully traverses the rejections to claims 21-40 and requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 101.

On page 4 of the Office Action, the Examiner alleges that the final results of the claims are nothing more than abstract ideas within a processor. Applicants respectfully disagree. In regard to claim 21, for example, section 101 of title 35, United States Code, provides:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

As the Supreme Court has recognized, Congress chose the expansive language of 35 U.S.C. § 101 so as to include “anything under the sun that is made by man” as statutory subject matter. Diamond v. Chakrabarty, 447 U.S. 303, 308-09, 206 USPQ 193, 197 (1980). In Chakrabarty, 447 U.S. at 308-309, 206 USPQ at 197, the court stated:

In choosing such expansive terms as "manufacture" and "composition of matter," modified by the comprehensive "any," Congress plainly contemplated that the patent laws would be given wide scope.

Applicant recognizes that the Federal courts have held that 35 U.S.C. § 101 does have certain limits. First, the phrase “anything under the sun that is made by man” is limited by the text of 35 U.S.C. § 101, meaning that one may only patent something that is a machine, manufacture, composition of matter or a process. See, e.g., Alappat, 33 F.3d at 1542, 31 USPQ2d at 1556; Warmerdam, 33 F.3d at 1358, 31 USPQ2d at 1757 (Fed. Cir. 1994).

To properly determine whether a claimed invention complies with the statutory invention requirements of 35 U.S.C. § 101, the first determination is whether the claim falls within at least one of the four enumerated categories of patentable subject matter recited in section 101 (i.e., process, machine, manufacture, or composition of matter).

Applicants respectfully submit that claim 21 recites one or more steps to be performed, and thus falls within one of the enumerated categories of patentable subject matter (e.g., a process).

Next, whether the claim falls within one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. 101 (i.e., process, machine, manufacture, or composition of matter) does not end the analysis because claims directed to nothing more than abstract ideas (such as mathematical algorithms), natural phenomena, and laws of nature are not eligible for patent protection. Diehr, 450 U.S. at 185, 209 USPQ at 7; accord, e.g., Chakrabarty, 447 U.S. at 309, 206 USPQ at 197; Parker v. Flook, 437 U.S. 584, 589, 198 USPQ 193, 197

(1978); Benson, 409 U.S. at 67-68 , 175 USPQ at 675; Funk, 333 U.S. at 130, 76 USPQ at 281. While abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods and products employing abstract ideas, natural phenomena, and laws of nature to perform a real-world function may well be.

In evaluating whether a claim meets the requirements of section 101, the claim must be considered as a whole to determine whether it is for a particular application of an abstract idea, natural phenomenon, or law of nature, and not for the abstract idea, natural phenomenon, or law of nature itself. A claimed invention is directed to a practical application of a 35 U.S.C. 101 judicial exception when it, otherwise produces a useful, concrete and tangible result. The Examiner alleges that claim 21 fails to produce a tangible and concrete result.

The tangible requirement requires that the claim must recite more than a 35 U.S.C. 101 judicial exception, in that the process claim must set forth a practical application of that judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77. The other consideration is whether the invention produces a concrete result. In other words, the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. In re Swartz, 232 F.3d 862, 864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000).

The Examiner further has failed to provide reasoning, evidence, or case law indicating why the transformations of the data representing the deformed model recited in claim 21 fail to produce a real-word result to support the Examiner's conclusion that the resulting deformed model is an abstract idea within a processor, and therefore not tangible under section 101. Furthermore, the Examiner has failed to provide reasoning, evidence, or case law demonstrating that the process of claim 21 cannot substantially produce the same result again to support the Examiner's conclusion that the result of the deformed model is not concrete under section 101.

Applicant, however, notes that the claim at issue in State Street does not recite any specific step for outputting or providing a result outside of a processor as alleged to be

required by the Examiner in the Office Action. The Federal Circuit held that the claim was patentable because:

the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete and tangible result' - a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades. State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. (Fed. Cir. 1998). (Emphasis Added).

Applicant previously argued that the transformation of the undeformed model (e.g., data representing a discrete defined model/object) using a graphical warp as recited in claim 21 produces a real-world result – the deformed model (e.g., transformed data representing a discrete defined model/object) momentarily fixed for recording and displaying purposes, and even accepted and relied upon by the computer industry, the entertainment industry, and the medical imaging industry that use computer graphic tools that include warping techniques. (See Application: Background, first paragraph.) The Examiner has failed to provide any evidence to demonstrate that the resulting deformed model as recited in claim 21 is not a real-world result that cannot be accepted and relied upon by the computer industry (e.g., computer graphics), the entertainment industry (e.g., special effects, animations, movies), and the medical imaging industry (e.g., x-rays, MRIs, PETs).

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Examining Group 2628

PATENT

CONCLUSION

In view of the foregoing, Applicant believes all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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